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COMMANDER'S CRITICAL INFORMATION REQUIREMENTS

ABSTRACT: *The Commander's Critical Information Requirements (CCIRs) support the commander's situational understanding and help to describe the commander's vision to the staff. CCIRs – among other information requirements – are identified during the mission analysis phase of a planning process. Depending on the type of CCIRs, different staff functions are responsible for developing, managing, updating and disseminating CCIRs. The aim of this paper – in line with the main trends of military scientific research in Hungary¹ – is to highlight the latest changes in NATO and US doctrines and share the best practices learned during NATO planning exercises. To describe the concept of CCIRs, the author provides an overview on the commander's role in the operation process that drives the development of CCIRs and on the roles of different staff functions in creating and managing CCIRs during the planning and execution of an operation.*

KEYWORDS: *Information requirements, CCIRs, PIRs, FFIRs, planning process*

COMMANDER'S ROLE IN THE OPERATIONS PROCESS

The commander is the most important participant of the operations process and drives it through *understanding, visualizing, describing, directing, leading, and assessing* operations.² The Commander's Critical Information Requirements (CCIRs) are key information and knowledge management tools that assist the commander during the operations process and contribute mostly to the *understanding* and *describing* actions of the commander.

In order to *visualize* the desired outcome of an operation and to make the right decisions in the right time, the commander needs to form a clear *understanding* of the operational environment using the operational variables (PMESII)³ or the mission variables (METT-TC).⁴ A better Situational Awareness provides a significant advantage over the enemy and acting faster than the opponent will grant initiative. Situational Awareness may support initiative and timely actions, but the right decisions depend on the commander's understanding of the situation. In order to develop a clear situational understanding and to frame the problem,

¹ Boda, J. et. al. "Fókusz és együttműködés: A hadtudomány kutatási feladatai". *Honvédségi Szemle* 144/3. 2016. 3–19.

² *Army Doctrine Reference Publication 5-0: The Operations Process*. Washington: Department of the Army, 2012. 1–3.

³ PMESII: Political, Military, Economic, Social, Infrastructure and Infrastructure domains at the operational level.

⁴ METT-TC: Mission, Enemy, Terrain and Weather, Troops and Support available, Time available and Civilian considerations variables at the tactical level.

the commander uses his personal experience, observation, view of the mission, the higher commander's intent and other inputs from the staff.

Following the *understanding* step, the commander *visualizes* the desired end state and the broad concept of how the force will achieve the end state in relation with time and space. The commander *describes* the mission and the achievement of the overall operation to the staff through the *Commander's Intent*, the *Planning Guidance* and the *Commander's Critical Information Requirements* (CCIRs).⁵ The commander has to make sure that subordinates and the staff understand his vision, so he uses doctrinal terms when describing his vision, formulating his information requirements and updating his guidance during the planning process and execution of the operation.

The staff helps the commander to develop his situational understanding by providing information and by filtering what is important to mission accomplishment. The key question is, "*What does the commander need to know in a specific situation to make a particular decision in a timely manner?*"⁶ Planners must consider the following criteria when proposing information requirements to the commander as CCIR: in connection with a CCIR, there must be a decision that is critical to the success of the overall mission and the decision must be made by the commander, not by the staff.

Assessment is an important process that provides feedback on the operation, evaluates changes in the environment and measures the accomplishment of the mission. "*Commanders continuously assess the operational environment and the progress of the operation, compare them to their initial visualization, understanding and intent, and adjust operations based on this analysis.*"⁷ The CCIR process and assessment process are linked as both support the commander's timely decision making.

CCIR AND INFORMATION REQUIREMENT CATEGORIES

CCIRs are elements of information that are critical for timely decision making of the commander and they belong exclusively to him. All staff sections can suggest potential CCIRs they think meet the commander's guidance. The CCIR list is short and should normally be limited to ten items so that the force can prioritize its efforts and allocate resources. The staffs add, delete, modify, and update CCIRs during the operation based on the information the commander needs for decision making. CCIRs fall doctrinally into the following categories and are developed and managed by different staff functions: *Priority Intelligence Requirements*-PIRs and *Friendly Forces Information Requirements*-FFIRs. *Essential Elements of Friendly Information*-EEFI are not CCIRs, but another type of information requirement which are at the same level as CCIRs. Older doctrinal publications may still consider EEFI as type of CCIRs.

Priority Intelligence Requirements (PIRs) are developed and managed by the J2-Intelligence staff, but any other staff function can contribute with recommendations during the planning process and the execution of the operation. The PIRs that are approved by the commander automatically become CCIRs. PIRs normally focus on the enemy/adversary and other aspects of the operational environment that the commander considers most important for his timely decision making.

⁵ NATO Standardization Office (NSO). "ATP-3.2.2: Allied Tactical Publication for Command and Control of Allied Land Forces". 2015. 2-14.

⁶ *Field Manual 101-5: Staff Organization and Operations*. Washington: Department of the Army, 1997. 5-7.

⁷ "JP 3-0: Joint Operations". 11 Aug 2011. II-9.

Friendly Forces Information Requirements (FFIRs) focus on information the commander and staff must know about the status and availability of the friendly force and supporting capabilities. Approved FFIRs turn automatically into CCIRs. In coordination with the staff, the J5-Plans or J3-Operations branch manages FFIRs for the commander. *Host Nation Information Requirements (HNIR)* are those FFIRs the commander needs to know about the Host Nation capabilities and the situation of its forces.

Essential Elements of Friendly Information (EEFI) are not CCIRs, but they have the same priority as CCIRs and need the same approval of the commander. An EEFI represent an element of information that must be protected against enemy influence or intelligence collection. EEFIs are those elements of friendly force information that may risk the mission or the achievement of an objective if the enemy manages to exploit them. In simple words, EEFIs are those pieces of information that need to be hidden from the enemy. Like CCIRs, EEFIs can change during the whole operation.

Request for Information-RFI is not a CCIR either, but plays an important role in planning process as planners develop multiple information requirements about the enemy, the operational environment, own forces and the host nation. Staff members review the existing database for possible solutions to information requirements. If the information does not exist, the staff member issues an RFI. An RFI leads to a production requirement, if the request can be answered inside the organization from an existing database, or a collection requirement, if it requires a new information collection.⁸

CCIR DEVELOPMENT IN THE PLANNING PROCESS

During the planning process the staff develops information requirements and recommends the commander to designate some of them as CCIRs. Information and knowledge gaps are identified normally during Mission Analysis, and are updated during the following phases like developments of Course of Action, Concept of Operations and the Operation Plan. For information and knowledge gaps identification and CCIR development the most significant Mission Analysis steps are the *Factor Analysis*, *Center of Gravity Analysis*, building the *Operational Design* and *Determining Critical Operational Requirements*.

The J2-Intelligence staff leads the development of the Joint Intelligence Preparation of the Operational Environment (JIPOE), using the operational variables – the PMESII domains, or the mission variables – the METT-TC framework. The results of JIPOE and the higher level strategic and operational documents – like the Strategic Planning Guidance – are analyzed by the (Joint) Operational Planning Group-(J)OPG during *Factor Analysis* and *Center of Gravity Analysis*. The *Operational Design* consists of several items of operational art, and CCIRs play an important role in supporting the whole concept, especially the commander's Decision Points. The Information, Knowledge and Intelligence Requirements are identified among other *Critical Operational Requirements* during Mission Analysis.

Factor Analysis

Factor Analysis is a mental process when the (J)OPG examines the operational environment and main actors, identifies *factors* and develops *deductions* and *conclusions*. Factors are

⁸ “JP 2-0: Joint Intelligence”. 22 Oct 2013. I-9.

significant factual statements of information known to be true that have operational implications. Deductions are the implications, issues or considerations, derived from facts that have operational significance. Conclusions are the outcomes or results reached that require action in planning or further analysis.⁹

Factor (What is the current state of affairs or trends?)	Deduction (So what is the significance of the factor?)	Conclusion (So what can or should be done?)
101. The enemy reserve Armor Brigade has not been committed; it is still in Assembly Area.	101.1. According G2 estimate, the reserve will most likely be committed in the Western Sector in the next four days.	101.1.1. RFI What is the composition and Combat Effectiveness level of the enemy reserve Armor Brigade?
		101.1.2. CCIR (PIR) When and where the enemy reserve Armor Brigade will be committed?
	101.2. If the reserve is committed in the Central Sector, 1st Infantry Brigade may need reinforcements to successfully defend in their Area of Operations.	101.2.1. Same as 101.1.2.
		101.2.2. CCIR (FFIR) What is the Combat Effectiveness level of 1st Infantry Brigade?

Figure 1. *Factor Analysis table (created by the author based on COPD. 4-44.)*

The results are captured in the Conclusion column. As staff members are looking for the “so what” answers they try to find the best options based on their experience and field of expertise. They also need to meet two other requirements: the conclusions need to be stand-alone statements, so the (J)OPG can use them later during the following steps of planning process; and they need to label the Conclusion as one of the categories used in the planning process, like Decisive Condition, Force Capability, Precondition for Success, etc. Knowledge and Information gaps, CCIRs and RFIs are identified as well during the process, as it can be seen in Figure 1.

Center of Gravity Analysis

Center of Gravity (COG) Analysis is conducted on all the main actors, like the enemy, ourselves, allied partners and if applicable, the host nation. It can assist the development of design concept. “Centers of Gravity are characteristics, capabilities or localities from which a nation, an alliance, a military force or other grouping derives its freedom of action, physical strength or will to fight. Operational COGs are typically a dominant capability which allows the actor to actually achieve operational objectives.”¹⁰ The significance of COG Analysis is the identification of the COG, and more importantly the critical vulnerabilities (how the COG can be attacked or influenced). Critical vulnerabilities of the enemy’s COG must be exploited and the vulnerability must be protected in case of friendly actors.

⁹ NATO SHAPE. “Allied Command Operations Comprehensive Planning Directive: COPD Interim v2.0.”. 4 Oct 2013. 4–44.

¹⁰ NATO SHAPE. “Allied Command Operations...”. 4–45.

In order to reach the critical vulnerabilities of the COG, the critical capabilities (which provide its strength) and the critical requirements (which are necessary for the COG to be effective) are identified as well during the process. Just like in the case of Factor Analysis, the conclusions should be stand-alone statements and may be labeled as different elements of operational art and categories of the planning process, e. g. Decisive Condition, Rules of Engagement, Conditions to be Established, etc. The conclusions can be information requirements for further planning, targeting, operation assessment, or even CCIRs. Not all the findings in the conclusions will be implied and incorporated into the concept and the plan. Many of them are filtered out by the planners of (J)OPG. The more experienced the staff members are, the better conclusions are developed with better information requirements and CCIRs. The final, filtered and approved CCIRs are included in the Coordinating Instructions of the Operation Plan.

Step 1. Desired aim and outcome	
Step 5. Centre of Gravity Enemy Land Component	Step 2. Critical Capabilities 1. The ability to conduct offensive operation 2. The ability to occupy and defend territory
Step 4. Critical Vulnerabilities 1.2.1. Reserve Armor Brigade is exposed to air interdiction during movement from Assembly Area to the Forward Line of Enemy Troops.	Step 3. Critical Requirements 1.1. Combined arms brigades 1.2. Reserve Armor Brigade 1.3. Air defense units
Step 6. Conclusions Information Requirement/RFI: What is the composition, disposition and Combat Effectiveness level of enemy reserve Armor Brigade? (<i>RFI for planning, intelligence production, or collection requirement</i>) Information Requirement/RFI: When will the enemy reserve Armor Brigade start moving and along which route? (<i>RFI for targeting, intelligence collection requirement</i>) CCIR: When and where the enemy reserve Armor Brigade will be committed? (<i>for the commander's Decision Point to commit the reserve brigade in the Western or Central Sectors</i>)	

Figure 2. Center of Gravity Analysis Matrix in NATO operations planning process (created by the author based on COPD. 4-45.)

Operational Design

In NATO's operations planning process the *Operational Design* consists of two parts, the operational framework (the actual operational design in the US) and the commander's initial intent. The operational framework provides a conceptual overview and it is the most important tool for the commander to visualize the entire campaign or operation. As a result of the factor analysis, systems analysis, COG analysis, the analysis of the mission with the objectives, the staff prepares the operational framework, using operational design concepts such as objectives, Decisive Conditions, effects, etc.

As different lines of operations are being developed, the (J)OPG identifies possible branches and sequels to alter the original lines at certain Decision Points, or insert new sections in it. The commander's Decision Points are always linked to CCIRs, which will drive the intelligence collection efforts. Even though CCIRs are not shown in the operational framework, the Decisive Points mark the points along a line of operation where the commander needs to make a decision, normally executing a new course of action which is already planned in a Contingency Plan as a branch or sequel. One Decision Point can be supported by multiple CCIRs (PIRs and FFIRs).

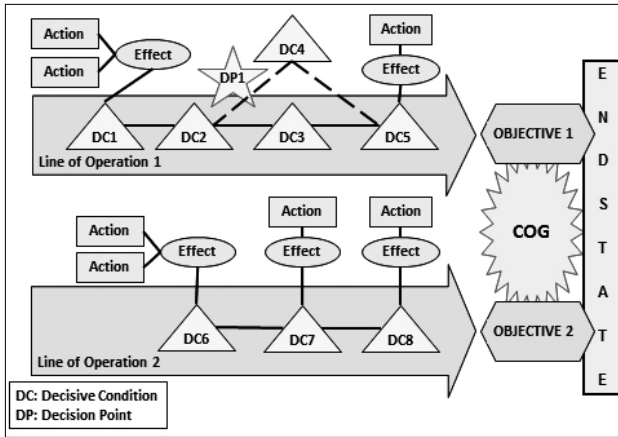


Figure 3: Operational Design (created by the author)

Determine Critical Operational Requirements

As part of the Mission Analysis the staff identifies critical operational requirements like Information, Knowledge and Intelligence Requirements, Critical Operational Support and Resources Requirements, Preconditions for Success, Rules of Engagement, Risks, etc.¹¹ As a result of Factor Analysis and Center of Gravity Analysis information, knowledge and intelligence gaps are identified in regard of the enemy, own forces and the operational environment that will drive the planning process and execution of the operation for the staff members and Subject Matter Experts (SMEs) like targeting, or operation assessment. The identified and commander approved Information, Knowledge and Intelligence Requirements will support the development of RFIs, CCIRs and the intelligence collection plan.

DP	Time	Decision	Conditions	PIRs/FFIRs		COM Options
				Purpose	Resp	
1	ENY dependent	Employ Reserve Brigade in Central Sector to reinforce 1st Infantry Brigade	Criteria: Enemy reserve Armor Brigade is committed against 1st Infantry Brigade in Central Sector.	CCIR 1. When and where the enemy reserve Armor Brigade will be committed?	LCC	Commander of Land Component Command (LCC) employs Reserve Brigade in Central Sector. Execute CONPLAN 001.

¹¹ NATO Standardization Agency (NSA). "AJP-5: Allied Joint Doctrine for Operational-level Planning". 2013. 3-17.

DP	Time	Decision	Conditions	PIRs/FFIRs		COM Options
				Purpose	Resp	
2	ENY dependent	Employ Reserve Brigade against enemy Maritime Incursion	Criteria: Enemy approaches southern shore with battalion or larger landing force. Location: Southern coastal flank of LCC.	CCIR 2. When and where will the enemy fleet conduct an amphibious landing?	LCC	Employ Reserve Brigade against Maritime Incursion. Execute CONPLAN 002.
3	Condition based	Counter attack in Western Sector	Criteria: Enemy reserve Armor Brigade's attack halted, no other reinforcement available, C2 disrupted, enemy culminated. Location: Western Sector.	CCIR 1. When and where the enemy reserve Armor Brigade will be committed?	LCC	Employ Reserve Brigade in Western Sector to counterattack. Execute CONPLAN 003.

Figure 4. Example of Decision Support Matrix (created by the author)

CCIR MANAGEMENT

Different staff functions have different roles in developing, managing, updating and disseminating CCIRs. J5-Plans and Policy branch has the overall responsibility for consolidating FFIR nominations and providing recommendation to the commander during planning. Normally staffs have a CCIR working group run by J5 (or J3) to manage the CCIR list, modify it, add new and delete the obsolete ones. During the execution of the operation J5 – or according to US doctrines – J3-Operations branch is responsible for managing and updating the FFIRs of the current operations.

J3 and the operation center are in charge of the running operation, tracking all the activities that may be related to CCIRs. Staff members on duty in the operation center need to know what information is critical for the commander to make timely decisions, what needs to be briefed immediately, what can be reported during the next shift change, or at the next scheduled commander's update briefing. The Decision Support Matrix (Figure 4.) is developed during the planning process and is a very useful tool for the commander to execute pre-planned courses of action.

There can be other information, knowledge and intelligence requirements that are not CCIRs, not linked to Decision Points, alternative courses of action and Contingency Plans, but the commander considers important. These are called Notification Criteria (or wake-up criteria) and listed in the Notification Matrix (Figure 5.) Notification Criteria should not be confused with CCIRs. They tend to be items that are expected to create intense media attention, higher level political interest and questions, but can be anything that is required for the commander's Situational Awareness.

Event	Notification of key personnel				Actions
	COM	DCOM	COS	OPSCEN DIR	
Civilian casualties due to collateral damage	1	2	2	1	INFOOPS/PAO messaging to maintain public support
Green-on-blue incident	1	2	2	1	Increase Force Protection measures level
Use of weapons not in accordance with the Rules of Engagement	1	2	3	1	ROE training, INFOOPS/PAO messaging to maintain public support
Cross border incidents	1	2	2	1	Increase reconnaissance and surveillance
Remarks: COM-commander, DCOM-deputy commander, COS-Chief of Staff, OPSCEN DIR-operations center director	1: immediate 2: same shift 3: next COM update brief				INFOOPS: information operations PAO: public affairs office

Figure 5. Example of Commander's Immediate Notification Criteria Matrix (created by the author)

The commander organizes the staff in a way they can support his information, intelligence and operational requirements. The commander should be familiar with the intelligence process and it is his “*responsibility to provide direction and guidance, to define priorities, to resource intelligence collection and analysis effectively, to demand the highest standard of products and to review the effects of his chosen actions.*”¹² The J2-Intelligence branch leads the Intelligence Requirements Management and Collection Management Process, which is the new NATO term for CCIRM.¹³ Basically it is a “*set of integrated management process and services to satisfy the intelligence requirements by making best use of the available collection capabilities.*”¹⁴

As part of the intelligence requirements, J2 manages PIRs, Specific Intelligence Requirements (SIRs) and Essential Elements of Information (EEI). SIRs are managed in the same way as PIRs and they provide a more detailed description of the requirement. “*SIRs are used by the intelligence staff to determine what intelligence asset, collection capability or discipline can best satisfy the requirement.*”¹⁵ SIRs are broken down into more detailed EEIs creating basis of the intelligence collection plan.

¹² NATO Standardization Office (NSO). “AJP-2: Allied Joint Doctrine for Intelligence, Counterintelligence and Security”. 22 February 2016. 2–6.

¹³ CCIRM: Collection, Coordination, Intelligence Requirement Management.

¹⁴ NATO Standardization Office (NSO). “AJP-2.1: Allied Joint Doctrine for Intelligence Procedures (B)”. 6 June 2016. 1–5.

¹⁵ NATO Standardization Office (NSO). “AJP-2.1...”. 3–3.

PIR	SIR	EEI	Activity	NAI*	Reporting	Unit A	Unit B	Unit C
PIR 1	SIR 1.1	EEI 1.1.1	What?	Where?	When?	x		
		EEI 1.1.2					x	
	SIR 1.2	EEI 1.2.1					x	
		EEI 1.2.2						x
*NAI: Named Area of Interest								

Figure 6. Example of an intelligence collection plan (created by the author based on AJP-2.1 3-8)

According to the US approach, EEIs are sub-entities of PIRs, not SIRs. SIRs are developed in connection with RFIs. RFIs can lead both to production or collection requirement. In case of collection requirement, the requestor should provide specific information requirements (SIRs) to allow the formulation of collection requirements and the allocation of collection capabilities. If SIRs are not provided by the requestor, the collection manager will determine the indicators of activity the collection capabilities should focus on.¹⁶

SUMMARY

It is still a common mistake to call EEFI CCIRs while the latest NATO and US doctrinal publications consider them as another type of information that must be protected against enemy intelligence. EEFI-Essential Elements of Friendly Information are not to be mistaken with EEI-Essential Elements of Information, which are intelligence requirements and sub-entities of SIRs-Specific Intelligence Requirements. As a result of changes in NATO doctrines the definition of CCIRM-Collection, Coordination, Intelligence Requirement Management is not in use, it has been replaced with the term of Intelligence Requirements Management and Collection Management Process.

The lack of time or the staff's lack of experience can lead to several mistakes during planning like the followings:

The conclusions of Factor and COG Analyses are not formed as stand-alone statements and the planners cannot use them later.

The staff develops information requirements (RFIs) without checking the existing database.

Information requirements are mistaken with CCIRs, and the staff identifies too many CCIRs in order to support their own understanding instead of the commander's.

Decision Points are developed, but not linked with CCIRs.

Factor Analysis and Center of Gravity Analysis are conducted before Operational Design development and the staff often jumps to premature conclusions about CCIRs without knowing the lines of operations, Decisive Conditions and Decision Points.

Due to the time pressure the staff tends to accept the CCIRs identified during Factor and COG Analyses without filtering, adjusting or adding new ones to the CCIR list.

CCIRs are time-sensitive and always established by an order or plan. They depend on

¹⁶ "JP 2-0: Joint Intelligence". 1-10.

situations, predictable events or activities and the commander needs them to make the right decision in time.¹⁷ There are only two types of CCIRs, the PIRs and FFIRs. The staff's role is to develop, filter, manage and disseminate CCIRs in support of the commander. PIRs are managed by J2 and drive the intelligence collection process. FFIRs are managed by J5 or in some cases J3. Both can be found in the Commander's Decision Support Matrix, which is a useful tool for the commander to execute pre-planned courses of actions and contingency plans. CCIRs and the Decision Support Matrix are not to be confused with the Commander's Immediate Notification Matrix, which is another tool for the commander to raise Situational Awareness especially in cases with potential interest of higher level decision makers and the media.

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¹⁷ "JP 5-0: Joint Operation Planning". 11 Aug 2011. IV-11.